St.Lideta Health and Business College

Department of Pharmacy

Course outline

Course Title: Pharamaceutical Supply Chain Management

Course No.: (Phar 4212)

Credit Hours: (7 ECTS)

Course prerequisite/s: Health Service Management and Policies (PUBH 3141)

Course Description*:*

The drug management course is designed to prepare pharmacy students to be competent managers of pharmaceutical supply systems. The course introduces students with the concept of essential drugs and strategies to ensure access to medicine and other health commodities to the endure (patient) at an affordable price, drug policy and its policy, and rational drug use and tools to investigate use of medicines. It also gives an insight on how the drug supply management cycle, namely, selection, quantification, procurement, distribution, and rational use function. It also enables students to be active participants in the formulation, implementation monitoring and evaluation of National Drug Policies

Course objectives:

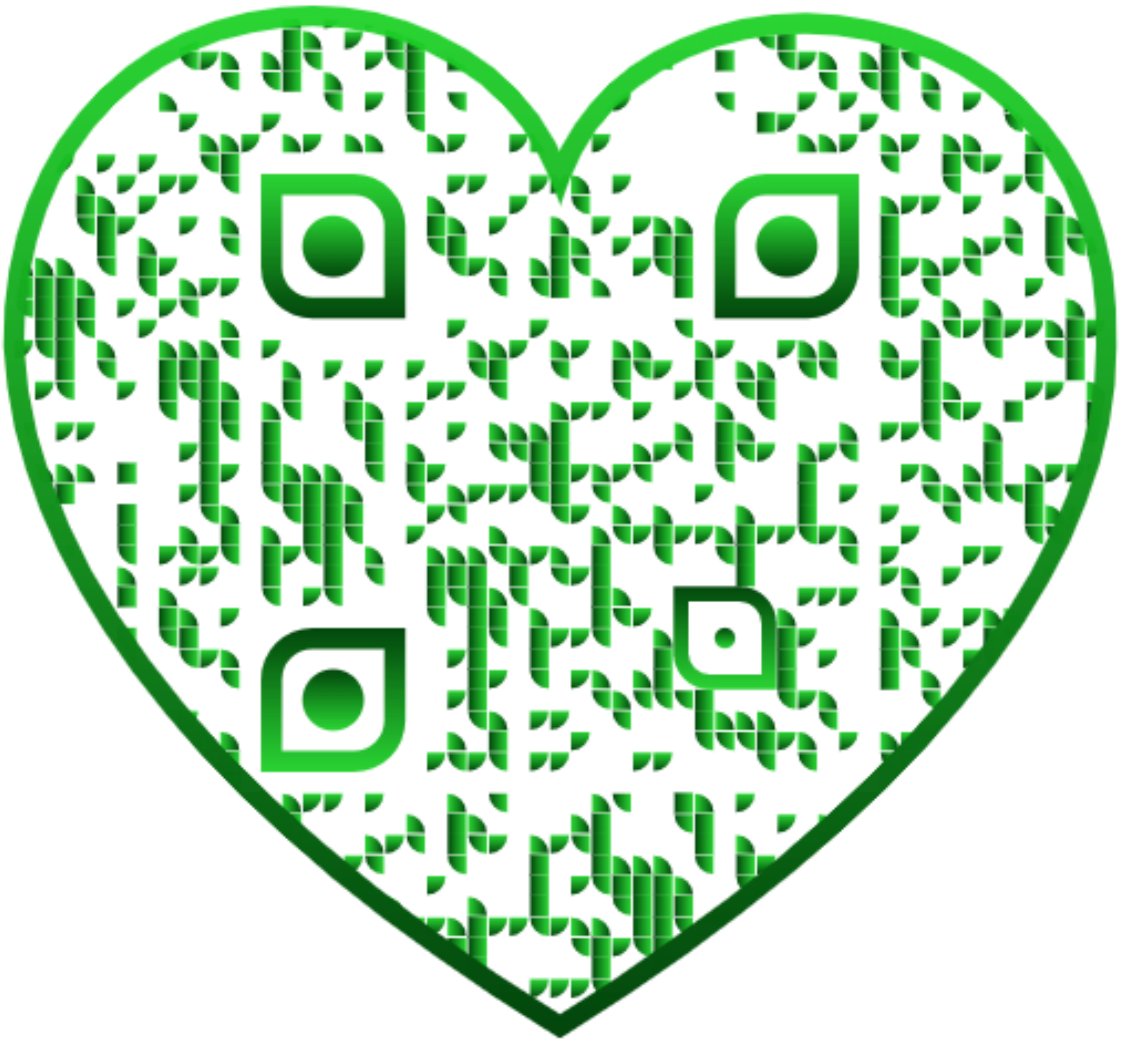
After completion of this course, students will be able to;

- Source, store and distribute the right medicines and other health commodities to the end user (patient) in the right place at the right time and affordable price.
- Use the appropriate tools to investigate appropriateness of medicine use
- Assess the performance of the supply chain and take the appropriate corrective measures to ensure continuous improvement

Supporting Objectives:

To meet this objective, students will:

- ✓ Explain what national drug policy is and why countries need to have a drug policy
- ✓ Describe the principles of drug supply management system including selection, quantification procurement, distribution and usage at health facility or national level.
- ✓ Adopt methods of community drug needs assessment and drug use evaluation.
- ✓ Adopt good storage practice and standard operating procedures for drug management at health facilities.



- ✓ Prepare list of essential drugs and supplies at health facilities or national level.
- ✓ Perform estimation (forecasting) of the quantities of drugs and supplies needed.
- ✓ Fill records and generate various reports to the appropriate persons and/or organizations.
- ✓ Demonstrate how to dispose expired and other unfit-for-use products based on national guideline
- ✓ Identify challenges for drug supply management.
- ✓ Explain drug selection, its rationale, and criteria for drug selection.
- ✓ Describe drug storage and stock management, stock rotation medical stock security and importance of stock management.
- ✓ Describe rational drug use: promotion of rational prescribing, dispensing and use by patients.
- ✓ Manage, monitor and evaluate the performance of the supply chain in sourcing, stocking and delivering medicines, medical equipment, medical supplies and other health commodities.
- ✓ Assume responsibility and accountability for wastage (damage or expiry) of medicines or supplies resulting from negligence.

Course learning/Teaching methods:

This course is thought using a variety of instructional methods including

- Illustrated lectures and case studies
- Active learning methods (brain storming, buzz group, discussion, etc)
- Individual and group exercises and assignments
- Presentations and participation in class discussion
- Hospital and Ethiopian Pharamceutical Supply Services (EPSS) visit

Methods of Assessment/Techniques:

- o Assignments: 15%
- o Practical reports: 10%
- o Quizzes: 15%
- o Test: 20%
- ✓ Final exam: 40%

Course Contents

1. **Introduction**
   - 1.1. Introduction to National Drug Policy (NDP)
   - 1.2. Development and implementation of NDP
   - 1.3. Objectives and key strategies of NDP
   - 1.4. Concept of essential medicine
   - 1.5. Formulary process
   - 1.6. Pharmaceutical Sector Transformation Plan of Ethiopia
2. **Health Commodity Security**
   - 2.1. What is health commodity security?
   - 2.2. Strategic pathway to health commodity security
   - 2.3. Steps involved in health commodity security
   - 2.4. The purpose of logistics system
   - 2.5. Major activities of the logistics system
   - 2.6. Components of a logistics cycle
   - 2.7. Key logistics terms
3. **Essentials of Healthcare Supply Chain Management**
   - 3.1. What Is Supply Chain and Supply Chain Management?
   - 3.2. Key Supply Chain Terminology and Concepts (value, push strategy, pull strategy, postponement strategy, bullwhip effect, strategic alliance, core competency)
   - 3.3. Developing Healthcare Supply Chain Maps
   - 3.4. Globalization and supply chains
   - 3.5. The importance and integrity of the supply chain to global health (universal health coverage; sustainable development goal; medicines availability, access and shortage; substandard and falsified medicines and supply chain security
4. **Prouct Selection**
   - 4.1 Introduction to selection of pharmaceuticals
   - 4.2. Selection criteria
   - 4.3. Approach to developing medicine list
   - 4.4. Contribution of supply chain personnel in selection
   - 4.5. Exerceise

5 . Quantification of Health Commodities

5.2. Introduction to quantification, forecasting and supply planning

5.3. Importance of quantification in supply chain management

5.4. Key steps in quantification

5.5. Process for initiating, reviewing and updating quantification

6 . Procurement of Health Commodities

6.2. Procurement

6.3. Procurement process and Management

6.4. Common procurement challenges.

6.5. Procurement rules and regulations in Ethiopia

7. Inventory Management

7.1. Introduction to and key terms of inventory management

7.2. Purpose and guideline of good storage practice

7.3. Storage System

7.4. Steps in storing pharmaceuticals

7.5. Designing pharmaceutical store

7.6. Pharmaceutical Disposal

7.7. Good distribution practice and its purpose

7.8. Designing/Redesigning distribution system

7.8.1. Transportation Management

8. Inventory Control System

8.1.Introduction to and Key terms of an inventory control system

8.2.Types of inventory control system and determining order quantities using the three versions of inventory control system

8.3.Setting minimum and maximum levels and emergency order point

8.4.Comparison of the three versions of inventory control systems

8.5.Inventory control system in Ethiopia

9. Logistics Management Information System

9.1.Logistics Management Information Systems

9.2.Essential Data for Decision Making

9.3.Logistics Records

9.4.Reporting Systems and Summary Reports

9.5.Feedback Reports

9.6. Ethiopian logistics management information system–the integrated pharmaceutical logistics system.

9.6.1. Auditable Pharmaceutical Transaction

10. Stock Status Assessment

10.1. Assessing stock status

10.2. When to assess stock status

10.3. How to assess stock status at any level in the system

11. Managing for Rational Use Medicines

11.1 . The medicine use process

11.2 . Rational use of medicines

11.3 . Irrational use of medicines and examples

11.4 . Causes of irrational use of medicines

11.5 . Impacts of irrational medicine use

11.6 . Strategies to promote rational use of medicines

12. Monitoring and Evaluation of Supply Chains

12.1 . Introduction to Monitoring and Evaluation

12.2 . Tools to investigate supply chain practice and performance

12.3 . Tools to investigate medicine use practice and performance

12.4 . Data collection methods

References: Texts and Reference Books

Required readings (Text):

1. Supply MD. MDS-3: Managing Access to Medicines and Health Technologies. Arlington, VA: Management Sciences for Health. 2012.
2. USAID | DELIVER PROJECT, Task Order 1. 2011. The Logistics Handbook: A Practical Guide for the Supply Chain Management of Health Commodities. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1
3. Ministry of Health of Ethiopia (1997). The National Drug Policy of the transitional government of Ethiopia, Addis Ababa, Ethiopia.
4. Prashant Yadav (2015) . Health Product Supply Chains in Developing Countries: Diagnosis of the Root Causes of Underperformance and an Agenda for Reform, Health Systems & Reform, 1:2, 142-154, DOI:10.4161/23288604.2014.968005
5. Chopra S, Meindl P, Kalra DV. Supply chain management: strategy, planning, and operation. Boston, MA: Pearson; 2013 Nov.

Recommended readings:

6. WHO (2001). How to develop and implement a national drug policy. Second edition. Geneva, Switzerland.
7. Smith, H.A. (2003). Principles and Methods of Pharmacy Management, 2nd ed. Lea & Febiger, Philadelphia, 1980.
8. Hardon A., Hodgkin C., and Fresle D. (2004). How to investigate the use of medicines by consumers, WHO/University of Amsterdam/Royal Tropical Institute.
9. WHO (1997). The use of Essential Drugs: Seventh Report of the WHO Expert Committee (including the revised Model List of Essential Drugs), TRS 867, WHO, Geneva, Switzerland.
10. WHO (1988). Estimating Drug Requirements, a practical Manual, WHO/DAP/88.2
11. WHO (1994). Indicators for Monitoring National Drug policies, a Practical Manual, WHO/DAP/94.12, WHO Geneva, Switzerland.
12. WHO (1990). Management of Drugs at Health Facilities, WHO/DAP/90.10 WHO, Geneva, Switzerland.
13. WHO (1997). Public-private Roles in the Pharmaceutical sector. Implications for equitable Access and Rational Drug use. Health Economics and Drugs, DAP seriesN. 5, WHO/DAP/97.12, WHO, Geneva, Switzerland.
14. Kermit D. Larsen: Fundamental Accounting Principles: 12th ed.; Richard Irwin Inc., 1990.
15. Hermanson, Edwards and Salmon son: Accounting Principles, 4th-7th ed. Richard D. Irwin Inc.1989.
16. Needles, Belverd E. Jr., Henry R. Anderson, James C. Caldwell, and Sherry K. Mills. Principles of Accounting. Houghton Mifflin Company.
17. McCabe A, Seiter A, Diack A, Herbst CH, Dutta S, Saleh K. Private sector pharmaceutical supply and distribution channels in Africa: a focus on Ghana, Malawi and Mali.